Application of Robert Getts
Serial No. 09/802,162 filed 3/8/2001
Response of 9/24/2003 to Office Action of 3/24/2003

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Twice Amended) A method for detection and assay on a microarray, said method comprising the steps of:

1) ~~contacting~~ taking a microarray having thereon a plurality of features each comprising a first particular first nucleotide sequence; ~~with a mixture comprising:~~

2) ~~a)~~ taking a first component comprising a cDNA reagents ~~obtained from mRNA of a target sample, said cDNA~~ having a capture sequence; and

~~b)~~ taking a second component comprising a dendrimer having at least one first arm comprising a label and at least one second arm having a second nucleotide sequence ~~complementary to said capture sequence~~;

wherein said cDNA reagents comprise a plurality of different nucleotide sequences, and wherein said capture sequence of said cDNA reagents is a common sequence among said cDNA reagents, said common sequence being complementary to said second nucleotide

sequence of said dendrimer, said capture sequence being used for binding of said dendrimers to said cDNA reagents, such that said second arm of said dendrimer can bind to any of said cDNA reagents having said capture sequence by hybridization of said second nucleotide sequence of said dendrimer to said capture sequence of said cDNA reagents; ~~and~~

2) mixing said first and second components at a temperature and for a time sufficient to enable said first component to bind to said second component; and

3) incubating this mixture with said microarray to enable the first nucleotide sequence to bind to said first component, wherein such binding results in the generation of a hybridization pattern on the microarray.

2. (Once Amended) The method of claim 1, wherein said cDNA reagents are obtained from mRNA of a target sample, and further comprising the step of forming the first component comprising the cDNA reagents by contacting the ~~target sample~~ mRNA with a quantity of a RT primer having the capture sequence, a reverse transcriptase, and nucleotide under conditions sufficient for initiating reverse transcription of ~~said~~ the mRNA into ~~the~~ said cDNA reagents.

3. (Previously Presented) The method of claim 2 further comprising the step of purging excess unhybridized RT primer from said first component prior to incubation of said mixture.

4. (Previously Presented) The method of claim 3 wherein the purging step further comprises the step of passing the first component through a spin column media.

5. (Previously Presented) The method of claim 1 wherein the temperature sufficient to enable the second component to bind to the first component is from about 50 to 55°C.

6. (Previously Presented) The method of claim 1 wherein the temperature sufficient to enable the first component to bind to the first nucleotide sequence is from 42 to 65°C.

7. (Previously Presented) The method of claim 1 wherein the temperature sufficient to enable the first component to bind to the first nucleotide sequence is from about 4 to greater than 72 hours.

8. (Previously Presented) The method of claim 1 wherein the time sufficient to enable the second component to bind to the first component is from about 0.25 to 1 hour.

9. (Previously Presented) The method of claim 9 wherein the microarray and the mixture are

incubated overnight at the temperature from about 42 to 65°C in a humidified chamber.

10. (Previously Presented) The method of claim 1, further comprising scanning the microarray for detecting the detectable signal and the hybridization pattern generated.

11. (Previously Presented) The method of claim 1, further comprising washing the microarray to purge dendrimers unattached to microarray after the incubation of the microarray and the mixture.

12. (Previously Presented) The method of claim 11, wherein the washing step further comprises:
washing the microarray with 2X SSC buffer containing 0.2% SDS at 55°C for about 10 minutes;
washing the microarray with 2X SSC buffer at about room temperature for about 10 minutes; and
washing the microarray with 0.2X SSC buffer at about room temperature for about 10 minutes.

13. (Previously Presented) The method of claim 1, wherein the mixture further comprising a hybridization buffer.

14. (Previously Presented) The method of claim 13, wherein the hybridization buffer further

comprising 0.25 M NaPO4, 4.5% SDS, 1 mM EDTA, and 1X SSC.

15. (Previously Presented) The method of claim 13 wherein the hybridization buffer further comprising 40% formamide, 4X SSC, and 1% SDS.

16. (Previously Presented) The method of claim 3 wherein the purging step further comprises the use of a hybridization chamber.

17. (Previously Presented) The method of claim 3 wherein the purging step further comprises the use of a hybridization station.

18. (Twice Amended) A method for detection and assay on a microarray, said method comprising the steps of:

1) incubating a mixture including:

~~1.~~ a first component comprising a cDNA reagents ~~obtained from mRNA of a target sample, said cDNA~~ having a capture sequence; and

~~2.~~ a second component comprising a dendrimer having at least one first arm comprising a label and at least one second arm having a second nucleotide

sequence ~~complementary to said capture sequence;~~ ;

wherein said cDNA reagents comprise a plurality of different nucleotide sequences, and wherein said capture sequence of said cDNA reagents is a common sequence among said cDNA reagents, said common sequence being complementary to said second nucleotide sequence of said dendrimer, said capture sequence being used for binding of said dendrimers to said cDNA reagents, such that said second arm of said dendrimer can bind to any of said cDNA reagents having said capture sequence by hybridization of said second nucleotide sequence of said dendrimer to said capture sequence of said cDNA reagents;

said incubation being conducted at a first temperature and for a time sufficient to induce said first component to bind to said second component to form a prehybridized cDNA-dendrimer complex;

2) contacting a microarray having thereon a plurality of features each comprising a particular first nucleotide sequence with said mixture; and

3) incubating said microarray and said prehybridized cDNA-dendrimer complex at a second temperature and for a time sufficient to induce said prehybridized cDNA-

dendrimer complex to bind to said first nucleotide sequence, wherein such binding results in the generation of a hybridization pattern on said microarray.

19. (Once Amended) The method of Claim 18, wherein said cDNA reagents are ~~is~~ obtained using a spin column.

20. (New) The method of Claim 1, wherein said mixing of said first and second components is conducted on said microarray.

21. (New) The method of Claim 1, wherein said mixing of said first and second components is conducted off of said microarray.

22. (New) The method of claim 18, wherein said cDNA reagents are obtained from mRNA of a target sample, and further comprising the step of forming the first component comprising the cDNA reagents by contacting the mRNA with a quantity of a RT primer having the capture sequence, a reverse transcriptase, and nucleotide under conditions sufficient for initiating reverse transcription of the mRNA into said cDNA reagents.

23. (New) The method of claim 22, further comprising the step of purging excess unhybridized RT primer from said first component.

24. (New) The method of claim 23, wherein the purging step further comprises the step of passing the first component through a spin column media.

25. (New) The method of claim 23, wherein the purging step further comprises the use of a hybridization chamber.

26. (New) The method of claim 23, wherein the purging step further comprises the use of a hybridization station.